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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/026,016

12/20/2001

Ralph H. Johnson

15436.436.2

6091

22913

7590

10/14/2005

WORKMAN NYDEGGER  
(F/K/A WORKMAN NYDEGGER & SEELEY)  
60 EAST SOUTH TEMPLE  
1000 EAGLE GATE TOWER  
SALT LAKE CITY, UT 84111

EXAMINER

NGUYEN, DUNG T

ART UNIT

PAPER NUMBER

2828

DATE MAILED: 10/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

**Office Action Summary**

Application No.

10/026,016

Applicant(s)

JOHNSON, RALPH H.

Examiner

Dung (Michael) T. Nguyen

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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --****Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 August 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-27 and 29-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-27 and 29-37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-27 and 29-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van de Walle et al. (US5383211) in view of Jewell et al. (US6359920).

With respect to claims 1, 3-7, 9-12, 15-19, 21-25, 27, 29, 31, and 33, Van de Walle show an active region comprising one compressive InGaAsSbN quantum well (col.6, l.24-35) comprising more than 1% N (col.4, l.42-50), AlGaAs barrier layers (col.4, l.67), and AlGaAs confinement layers (col.5, l.6-7). Van de Walle lack the quantum well having a depth of at least 40 meV. Jewell disclose the quantum well of 0.484 eV which satisfies the limitation of at least 40 meV. For the benefit of obtaining an optimum performance value for a wavelength emitting semiconductor laser, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Van de Walle what is taught by Jewell.

With respect to claims 2, 8, 14, 20, 26, and 30, Jewell disclose the GaAsP barrier layers (col.25, l.65-66).

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With respect to claims 13, 32, and 34, Van de Walle disclose the quantum well (active layer) thickness is 10-500 Angstrom (col.7, l.27-28) which satisfies the claim limitation of 50 Angstrom.

Claims 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van de Walle et al. (US5383211) in view of Jewell et al. (US6359920) and further in view of Ramdani et al. (5903586). Van de Walle and Jewell disclose all limitations of the claims except for the barrier layers are in tension.

Ramdani teach the barrier layers are in tension (col.3, l.57-58).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Van de Walle and Jewell what is taught by Ramdani to allow the VCSEL for a longer wavelength emission (col.3, l.60-61).

### *Response to Arguments*

Applicant's arguments filed on 08/15/05 have been fully considered but they are not persuasive.

- On page 10, first paragraph, Applicant argues that the Van de Walle does not disclose the compressed quantum well. The examiner does not concur and the Van de Walle, indeed, teaches the compressed quantum well (col.6, l.35).

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**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Additionally, Applicant's amendment of new claims 35-37 necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

### **Communication Information**

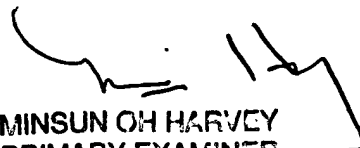
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung (Michael) T Nguyen whose telephone number is (571) 272-1949. The examiner can normally be reached on 8:30 - 17:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Min Harvey can be reached on (571) 272-1835. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-3329.

Michael Dung Nguyen



MINSUN OH HARVEY  
PRIMARY EXAMINER